

ABSTRACT

A calibration system for a vision-based automatic writing implement is disclosed. The automatically controlled writing implement is appended to an articulated robot arm. The writing implement draws or writes on a substrate and recognizes what a user draws or writes on the same substrate. The user may move the substrate while drawing, thereby confusing the drawing and recognition processes. Accordingly, a controller draws a target on the substrate initially. Before each drawing or recognition step, the controller uses a digital video camera to find and recognize the target and determine whether the substrate has moved. The target is asymmetrical, such that the controller can determine the orientation as well as the position of the substrate. The controller can then orient its drawing and recognition algorithms to the new location and orientation of the substrate.